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OUTLINE OF A METHOD OF CONSTRUCTING A PERSPECTIVE PLAN BASED ON POLISH EXPERIENCE

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OUTLINE OF A METHOD OF CONSTRUCTING A PERSPECTIVE PLAN

based on Polish experience

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I

1. Although this paper is based on the Polish experience in perspectiv planning it does not represent the official point of view on the subject. In the construction of the Polish twenty years plan a variety of approches were used and this happens to be one of them.

2. As the paper deals to a considerable extent with the problem of choice of the appropriate rate of growth of the national income it is necessary to say a few words about the concept in common use in the socialist countries which differs from that applied in the capitalist ones in that it excludes the production of services. It is true that the so called material services such as transport, laundry, restaurants and even trade are included. However the national income does not include the administrative services of the Government, entertainment, education, medical services etc. There also are excluded from the national income the services rendered by such fixed assets as residential houses, hotels etc.

3. I believe that for the purpose of long-run planning this approach has something to commend itself. It is easier to measure the real value of commodities than that of services. For instance, in the statistics of capitalist countries the real increase in administrative activities is measured by means of an index of employment of the officials /weighted according to the salaries in the base year/. No accounts is, and hardly could be, taken of changes in productivity of labour in this case.

4. For other reasons it is convenient not to include the residential rent in the national income. The capital coefficient is very high in this case and therefore the application of a general capital coefficient to the national income, in which residential rent is included, is fairly meaningless because the coefficient is very much influenced then by the relatives share of residential building in total investment.

5. Our approach does not mean, of course, that services should be neglected in the long-run planning. They are accounted for by appropriate planning of employment / for instance in the case of the administrative activities of the Government/or by planning of capacities of fixed assets of consumer type /e.g. dwelling space./

6. In line with the concept of national income used here we distinguish in investment the productive and uproductive investment. By productive investment we mean that destined for the production of goods and material services while other investment, such as construction of dwelling houses, streets, parks etc., is classified as unproductive investment.

7. Before proceeding with the subject proper it is still necessary to mention that in the Polish national planning no accrual of foreign credits is assumed. Such will be also our assumption in the subsequent discussion. This approach does not differ substantially from assumimg anaccrual of moderate foreign credits which are fixed beforehand in their amount. On the other hand, the difference between our approach and the assumption that any gap in foreign trade, however large, will be always covered by credits, it is crucial importance. For such an assumption would eliminate altogether the problem of balancing foreign trade which, as we shall see below, emerges as an essential factor in our approach to perspectiv planning.

II

8. The most important parameter of a long-run plan may be considered the average annual rate of growth of the national income. Thus the selection of the correct variant of the plan is really tantamount to a choice of the appropriate rate of growth of the national income. The Government has the natural tendency to develop the country as fast as possible, i.e. to fix the rate of growth at the highest possible level. There will be, however, a number of limiting factors which have to be taken into consideration here. The most obvious of these is the fact that the higher is the rate of growth the higher the relative share of productive investment in the national income. Indeed, the higher the increment of the national income at its given level the higher the investment which is necessary to achieve this increment / abstracting from utilization of the existing excess capacity/. It follows directly that the higher is the ratio of the increment of the national income to its level the higher the ratio of investment to the national income. Now, a higher relative share of productive investment in the national income will affect unfavourably consumption and unproductive investment in the short-run. This tendency obviously cannot be pushed too far because it would create dissatisfaction of the population eventhough in the long-run the cumulative effect of the high rate of growth contributes to an increase of the standard of living.

9. In many instances, however, the increase in the relative share of productive investment in the national income which accompanies the increase of the rate of growth is still enhanced by an additional factor. It appears, as will be shown in more detail below, that with the increase of the rate of growth there emerge difficulties in equilibrating the balance of trade. In its effort to achieve this equilibrium the country is forced down the path of investment requiring higher ca-

pital outlays in relation to the effect achieved in foreign trade and thus the relative share of productive investment in the national income /which we imagine to be adjusted for deterioration in the terms of trade/ will increase protanto more. It is very likely that at some level of the rate of growth balancing of foreign trade become an altogether impossible proposition and in this way there appears an absolute limit to the rate of growth.

10. Finally, at a sufficiently high rate of growth there may as well emerge a scarcity of labour. This can be overcome by increasing sufficiently the capital outlays in the plan but this will again aggravate the problem of the relative share of investment in the national income.

11. To sum up: the obstacles to a very high rate of growth in a perspectiv plan are the high capital outlay required both directly and as a result of the difficulties in equilibrating the balance of foreign trade and possibly also of the shortage of labour. In fact the difficulties in foreign trade may make virtually impossible exceeding a certain level of the rate of growth.

III

12. The first step in the construction of a perspective plan is to draw a crude outline of the plan assuming the rate of growth which is high in the light of the past experience of the country in question / falling such an experience in the light of experience of other countries in similar conditions/. We thus choose deliberately a high variant which it may be necessary to scale down already at the stage of preliminary testing.

13. Next, we have to make some assumption about the capital coefficient which relates the increment of the national income and productive investment. The value of the capital coefficient will have to be again chosen on the basis of past experience or the experience of other countries taking as much as possib under consideration the peculiar features of the period and the country in question. It is in any case impossible to have here anything but a crude approximation because the capital coefficient depends to a very great extent on the structure of the increment of output which may differ considerably from that in the past in another countries.

14. Now, having accepted some level of this coefficient for better or for worse we obtain the first approximation to the annual productive investment in the perspectiv plan, say. at its beginning, a its end, and in the middle of the plan. We handle in a similar way the problem of the coefficient relevant to the increase in inventories which enables us to determine this item. By deducting productive investment and the increase in inventories from the national income we determine finally the sum of consumption and unproductive investments.

15. In order to split this item into two components we have to compare the resulting standard of consumption of goods with the capacity of fixed assets yielding consumer services /e.g. with the per capita dwelling space in residential houses/. In this way it is possible to arrive at some reasonable decision which, however, would be bviously to a great extent arbitrary.

16. Already at this stage we may find out that the relative share of productive investment plus the increase in inventories in the national income is so high as to make the plan untenable because the inroads into consumption and unproductive investment would be too formidable in the short-run. However, since the result depends to a great extent on a level of a capital coefficient which is altogether hypothetical in character - it may be safer even in such a case to pursue the variant somewhat further.

IV

17. The next step is to establish at least in general lines the industrial structure of the national income. We have split the national income in the plan / i.e. at its beginning, at its end, and in the middle/ into four major components: productive investment, increase in inventories, unproductive investment and consumption. If we shall make still some reasonable assumptions about the future structure of consumption which may be based, for instance, on that of the more developed countries taking into consideration the local conditions of the country in question, we may proceed to a crude determination of the industrial structure. This is necessary for two reasons: for carrying out the test of the balance of trade and for obtaining a second approximation to the capital coefficient which would reflect the structure of the increment in output.

18. Here, however, an important distinction has to be made between two types of industries /including all branches of economic activity as agriculture, transport, etc./. We shall call these two categories supply determined and demand determined industries. By supply determined industries we mean such activities which have a certain ceiling for the long-run rate of growth for technical and organizational reasons, so that even a considerable increase in capital outlay will not be helpful in raising this output at a higher rate. The demand determined industries have no such ceilings, at least for the range of the rates of growth of the national income which come into consideration. Thus the output of such industries can increase in the long-run in accordance with demand.

19. The technological and organizational factors on which, in turn, depend the ceilings of the rate of growth of the supply determined industries are of a very vaaried nature. Limited natural resources are the simolest and most obvious example.

20. The time necessary for adaptation of new technological processes is another factor. The most serious diffficulties in the

way of introduction of new techniques are probably to be encountered in agriculture, where is always a certain element of spontaneity in the development of production. Even the amount of artificial fertilizers which can be profitably absorbed by agriculture is to a certain extent dependent on agrotechnical knowledge.

21. A futher factor impending development may arise from difficulties in recruiting manpower for certain trades / e.g. coal-mining/ or in making adequate progress in training of skilled technicians. Of particular importance can be the deficiency of technical and managerial personel indispensable for construction of new plant, which must be highly qualified and experienced. This is in fact the underlying factor of the adverse effect of the long period of construction on the rate of expansion of a particular industry.

22. With a given rate of investment in a particular industry, the number of establishments under construction is proportionate to the construction period. If this period is long and the rate of investment high, the number of "building sites" is so large that the existing highly qualified and experienced technical and organizational personnel cannot master them. If, in spite of that, the high rate of investment is maintained, the construction period becomes longer still, which results in freezing of capital rather than in accelerating expansion of the industry in question.

V

23. After this digression let us turn back to the determination of the industrial structure of the national income. Knowing the volume of productive and unproductive investment as well as of the increase in inventories; knowing moreover the volume and structure of consumption it is possible to make a rough estimate of the home demand for the products of the various branches of the national economy. This involves, of course, some knowledge of the technical coefficients of production with allowance for the future technical progress and also some decision as to the choice of technological variants / about the latter more will be said at the end of the paper/. Now, if the branch in question is supply industry, it can be ascertained how much of its produce is left for export or how much is necessary to import. In the import requirements there will be also obviously included commodities which cannot be manufactured at home at all. This determination will have to allow for possible home produced substitutes for imported materials.

24. In this way the first approximation to the total demand for imports will be established. And after deducting from their value that of exports provided out of the surpluses of the supply determined industries it may be found how much is still to be covered by the exports of the demand determined industries. Now, the production of these industries must be fixed in such a way that: a/ they should cover the home demand for their products, b/ the total of their contributions to exports should cover the remaining part of import requirements mentioned above. The total

of production of all branches of the national economy determined in this way of necessity equal to the national income. For it covers the demand generated by the four major home components of the national income either directly or by providing for exports which are required in order to cover the remainder of that demand by imports.

25. At this stage of argument it may be wondered whether a problem of equilibrium of the balance of trade really exists at all because it follows from above that the imports required are always automatically covered by exports if the total value of production equals the value of the home components of the national income. However, the equilibruim of the balance of trade arrived at in this way may be of no practical significance. It may be virtually impossible place the exports in the foreign markets at a scale corresponding to the export plans set out in a way described above. As a result of the pressure of the supply of the products in question their average prices may fall to such extent as to make it impossible to achieve the revenue of foreign exchange required for purchasing the necessary imports. Or even if it is possible to achieve this purpose, it will require very high capital outlays in relation to the effect in terms of foreign exchange, and as a result it will aggravate the problem of the relative share of investment in the national income / which, as said above, we imagine to be corrected for the deterioration in terms of trade.

26. If the country bases a part of its plan for foreign trade on long-term agreements, it will be again possible to place in these agreements only limited quantities of goods available for export. It should be noted, however, that long-term agreements have a considerable advantage over "normal" trade in making at least a part of the plan for foreign trade independent of the changes in international economic situation.

27. It is from point of view of practical implementation that the plan for exports must be examined. If it proves unrealistic it is clear that the rate of growth has to be scaled down. It should be added that the scaling down of the rate of growth, while maintaining unchanged the development of supply determined industries, will contribute considerably to the restoration of the equilibrium in the balance of trade. For this will cause a relatively steep reduction in the demand for imports and possibly also a steep increase in surpluses of the supply determined industries available for export.

28. If, on the other hand, the plan for foreign trade proves to be fairly realistic, it is still necessary to ascertain the influence of the expansion of exports upon the capital outlays.

VI

29. Finally, before making an estimate of the necessary investment, the balance of supply of and demand for labour has to be considered. For this purpose a forecast of supply of labour based on demografic considerations has to be made. Moreover, on the basis of the industrial structure of the national income, the demand for labour is to be approximately ascertained allowing for the increase in productivity resulting from technical progress. It should be noticed that in estimating the demand for labour in agriculture the

peculiar problems involved are to be taken into consideration.

30. If the comparison between the demand for and the supply of labour leads to the conclusion that at the assumed rate of growth a labour shortage will be imminent, it is necessary to assume in the plan more mechanization and modernization which will, of course again lead to higher investment outlays. It should be noticed that this problem is less likely to arise in underdeveloped countries than that of the difficulties in balancing foreign trade.

VII

31. Now, having estimated the industrial structure of the national output and also being familiar with the impact that difficulties in foreign trade and possibly also the shortage of labour exercise upon the capital outlays - we can proceed with estimating again the total productive investment. This estimate may differ considerably from the first one made on the basis of a hypothetical capital coefficient. It may occur that eventhough it is within practical possibilities to achieve the equilibrium in the balance of trade at the assumed rate of growth the ralative share of productive investment in the national income at which may prove intolerable. We have then to reduce somewhat the rate of growth and examine the new variant in the way described above.

32. The variant finally adopted should be distinguished by the highest possible rate of growth at which there is a realistic possibility of balancing foreign trade and at which the relative share of productive investment plus the increase in inventories in the national income considered tolerable by the authorities from the point of view of the impact upon consumption and unproductive investment in the short-run.

VIII

33. It has been mentioned above that in the course of ascertaining the demand for products of single industries generated by the home components of national income the problem of choosing between various technological alternatives will be encountered. As an example may be quoted the choice between electrification or dieselization of railways depending on the load of traffic on a given line. In order to settle such problems it is necessary to have a method for comparing the efficiency of two technological alternatives of producing the same final effect. Such methods have been in fact developed in Poland as well as in other socialist countries.

34. A similar problem arises in connection with various possibilities of earning foreign exchange by means of exports or substituting home production for imports. For the purpose of comparing various alternatives of earning one dollar in foreign trade there may be applied the same method as for comparing technological alternatives for achieving the same final productive effect.

35. It should be added, however, that the importance of such efficiency calculations for the determination of the structure of exports is reduced by two factors: a/ the existence of supply determined industries, and b/ the imperfection of foreign markets. In deed, it is impossible to concentrate on the most favourable ex-

ports because the development of the production of the goods in question may be limited by technical or organizational factors, or because placing these goods in the foreign market is impossible in large quantities without reducing their price which would make invalid the results of calculation of efficiency of investment based on given world prices. In this way the planner who has made the most of the profitable exports must also put up with the less efficient export alternatives.

36. It should be added that the calculation of efficiency should be applied as thouroughly as possible for the purposes mentioned above, and such is the case in Poland and other socialist countries. On the other hand, there is no point in applying them for anything else but the choice of technological alternatives or for the examination of the structure of foreign trade.

37. The structure of output in a planned economy cannot be determined apart from these two aspects by considerations of efficiency. Indeed, in an economy which would be closed and where only one method of achieving a given final productive effect were available, the calculation of efficiency would be out of place. For, as follows from the above arguments, with a given rate of growth of the national income, a given relation between unproductive investment and consumption, and a given structure of consumption - the industrial structure of the output would be fully determined by the technical coefficients of production.

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